

Related Services

In addition to a "leaf analysis service" designed to help growers determine their fertilizer requirements, a program of providing essentially virus-free nursery stock of strawberry and raspberry plants, and tree fruit propagating wood is carried on in co-operation with the Canada Department of Agriculture.

About 25 per cent of the technical staff's time is spent in extending research information to the public. This includes visits to and from growers, technical consultation, correspondence, meetings, the preparation of press and radio releases, and development of cultural and technical publications for use by growers and processors.

STAFF

The regular staff of the Institute totals 76. In addition, high school and university students interested in obtaining training in the various fields of work underway, are employed during the summer period. Graduate students in horticulture and plant pathology carry on graduate study programs under the supervision of Institute staff during the four summer months. A list of research and technical staff with their main responsibilities follows:

J.A. Archibald, Ph.D.	Director
A.M. Adams, Ph.D.	Chief, HPL*
E.T. Andersen, Ph.D.	Chief, Production & Plant Breeding
G.H. Collin, Ph.D.	Director, HES*
W.C. Harper	Executive Officer
F. Edwards, A.R.P.S.	Photographer
Barbara E. Lounsbury, B.A., B.L.S.	Librarian
O.A. Bradt, B.S.A.	Peaches, Apricots, Grapes
R.V. Chudyk, Ph.D.	Microbiology, HPL
R.A. Cline, Ph.D.	Plant Nutrition
Frances I. Cook, B.H.Sc.	Processing, HPL
R.F. Crowther, B.A.	Wine Investigations, HPL
R.A. Fleming, M.S.A.	Ornamentals
T. Fuleki, Ph.D.	Biochemistry, HPL
A. Hutchinson, Ph.D.	Apples
E.A. Kerr, Ph.D.	Vegetables, HES
S.J. Leuty, Ph.D.	Peaches
A. Loughton, M.Sc.	Vegetables
J.O. Sullivan, Ph.D.	Vegetable Production, HES
Z.A. Patrick, Ph.D.	Plant Pathology

S.C. Phatak, Ph.D.
J.T.A. Proctor, Ph.D.
H.J. Reissmann, Dip. Ldw.
C.L. Rickatson, Ph.D.
R.B. Smith, Ph.D.
G. Tehrani, Ph.D.
M. Valk, B.S.A.

J. Wiebe, Ph.D.
J. Barkovic, Polj. Tech.
Vacant
W.J. Bouw, Ont. Dip. Hort.

Pamela M. Gadd, N.C.C.

P.R. Goodwin, Dip. Chem. Tech.

Victoria E. Gray, Dip. H.E.C.

R. Hamersma, N.P. Dip.
D. Hunter, B.Sc.
E. Knibbe, Dip. Agr.
E.M. Lauro, Mech. Tech.
J.W. Lay, Forest Tech. Dip.

J. Lounsbury, Dip. Agr.

M. Mucalov, Ing. Agr.

S.A. Nesathural, Dip. Soil Sci.
R.B. Palabay, B.S. (Med. Tech.)

W.F. Pierce, Ont. Dip. Agr.

G. Reaume, Dip. Agr.

S.E. Stevenson, Ont. Dip. H.E.C.

W.A. Straver, Dip. Agr. R.H.T.S.
A.A. Vandenberg, Ont. Dip. Agr.
W. VanVleet, Assoc. Dip. Agr.

* HPL — Horticultural Products Laboratory, Vineland Station, Ontario, LOR 2E0

* HES — Horticultural Experiment Station, P.O. Box 587, Simcoe, Ontario. N3Y 4N5

* MRS — Muck Research Station, RR 1, Kettleby, Ontario, L0G 1J0



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Vegetable Physiology, HES
Pomology, HES
Plant Nutrition
Small Fruits

Storage & Refrigeration, HPL
Cherries, Pears & Plums
Senior Muck Crops
Specialist, MRS*

Grapes
Assistant, Apples
Assistant, Ornamentals

Assistant, Plant
Physiology, HES
Assistant,

Microbiology HPL
Assistant, Vegetable
Production, HES

Assistant,
Processing, HPL
Assistant, Ornamentals

Assistant, Grapes
Assistant, MRS
Engineering Technologist

Assistant, Cherries
Pears, Plums
Assistant, Storage and
Refrigeration, HPL

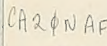
Assistant, Vegetable
Production, HES
Assistant, Wines

Assistant,
Biochemistry, HPL
Assistant,

Pomology, HES
Assistant, Plant
Breeding, HES

Climatology
& Statistics
Assistant, Vegetables

Assistant, Small Fruits
Assistant, Peaches,
Apricots and Grapes



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Journal of Agriculture and
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ORTICULTURAL
RESEARCH INSTITUTE
OF ONTARIO

Ontario Ministry of Agriculture
and Food
Vineland Station, Ontario

The Horticultural Research Institute of Ontario came into being on December 1, 1966. From 1966 until that time, the Vineland institution operated under the name "Horticultural Experiment Station". It is a unit of the Ontario Ministry of Agriculture and Food.

The Institute is responsible for the integration of all horticultural research in the province supported by Ontario Ministry of Agriculture and Food funds. This permits the closest possible co-ordination of research effort in this important phase of Ontario agricultural production. Research programs in horticulture at Guelph, Ridgetown, New Liskeard and Kemptonville, in addition to those at Vineland, Simcoe and Bradford, are co-ordinated under this Institute.

ORGANIZATION

The Institute consists of four units. Two are at Vineland - the headquarters unit, and the Horticultural Products Laboratory. The third is the Horticultural Experiment Station near Simcoe (Norfolk County), established in 1960. The fourth unit is the Muck Research Station at Bradford, dealing exclusively with problems involving production of vegetable crops on organic soils.

At Vineland, there are approximately 230 acres of field laboratory - orchards, vineyards, and vegetable crop areas, and ornamental plantings. The Horticultural Experiment Station at Simcoe consists of approximately 200 acres. A new, modern laboratory and office building was completed in the fall of 1969. The Muck Research Station on the Holland Marsh at Bradford comprises 9½ acres. New office, laboratory and greenhouse facilities were completed there in 1971.

Located on the campus at Vineland Station are the Research Station, Canada Department of Agriculture, dealing with plant protection problems, and the headquarters and local offices for the Fruit and Vegetable Extension Service of the Ontario Ministry of Agriculture and Food. With the formation of the Institute and its increased responsibility for research and service, the previous close links between these three units are now even more closely joined.

HISTORICAL BACKGROUND

The Horticultural Research Institute of Ontario, has for over 40 years, provided leadership in horticulture for the people of Ontario. In its early years, it gained international renown for the now famous "V" peaches, introduced from the breeding program. In more recent years, many commercially important varieties of both fruits and vegetables have resulted from the Vineland research efforts.

Research has not been limited to plant breeding. A active production research program has solved many problems facing Ontario growers. The Horticultural Products Laboratory, established in 1950 as part of the Institute, has made a significant contribution in the areas of food processing, winemaking, and new product development. The work of the Horticultural Experiment Station at Simcoe has enabled the Institute to expand its activities in the Lake Erie counties, and thus widen the horizon for production of Ontario fruits and vegetables. Increased demand for horticultural crops, and the gradual loss of Niagara fruit lands, have made the Norfolk County development particularly timely.

As the centre for horticultural activity, the Headquarters of the Institute is well situated in the heart of Ontario's largest fruit producing area, the Niagara Peninsula, on the south shore of Lake Ontario. The traditional main fruit growing area of the Peninsula is a strip of land extending from Hamilton on the west, to the Niagara River on the east, a distance of approximately 50 miles. It is from 3 to 7 miles wide, with Lake Ontario on the north and the Niagara Escarpment on the south. Grape production, however, now extends well above the escarpment.

CLIMATE

The climate of this strip of land is modified by the Great Lakes, particularly by Lake Ontario, and by the escarpment which was once the southern shore of glacial Lake Iroquois. Winter temperatures seldom go below 0 degrees F. Soils vary from sandy loams to heavy clays, and slope gently towards the Lake. The combination of these soils and climatic factors makes it possible to grow apricots, cherries, peaches and small fruits on the sandier soils; and apples, grapes, pears and plums on the heavier soils.

HORTICULTURAL RESEARCH ACTIVITIES

The Institute activities fall into 3 more or less well-defined fields — Production Research, Product Research and Development, and Related Services.

Production Research

The Production Research program is concerned with increasing the production and profitability of horticultural crops in Ontario to meet the demands of the market. Increased production per unit, improved quality of product, reduced labour inputs and expansion of present production areas through adaptation of other soils and climatic conditions are the major objectives of this program. Three main areas are involved.

(a) Cultural — Major emphasis is placed on the following aspects: plant nutrition including plant and leaf analyses as a means of determining nutritional levels and fertilizer requirements; plant and tree density and spacing studies; photosynthetic efficiency; chemical weed control; pollination and fruit setting; plant propagation; use of growth regulator chemicals for rooting of cuttings, control of flowering, tree size control, and for improvement of color and quality of fruit; rootstocks for tree fruits and grapes; determining optimum maturity for harvest, storage and market acceptability.

(b) Plant Breeding — The objective is the development of new varieties of fruit, vegetables and ornamentals better suited to Ontario cultural, climatic and market requirements than present varieties. Introductions to date include the "V" peaches — Earlyvee, Royalvee, Somervee, Valiant, Vanity, Vedette, Vedoke (B.C. only), Velvet, Vesper and Veteran; Veeport, Vincent, Vinered and Ventura grapes; Viceroy and Veecot apricots; Valor, Verity and Vision plums; Venus, Vernon, Victor, Vic, Vista, Vega, Valera, Viva and Vogue Sweet Cherries; Viking raspberry, Valentine, VeeStar, Vibrant strawberries; Valentine rhubarb; Viking asparagus; Harkness, Vogue, Venture, Vivid and Pink Vogue early market tomatoes; Vetomold, Vulcan, Vinequeen, Vantage, Veegan and Vendor greenhouse tomatoes; Veeport, Viceroy, Vinered, Viscount and Veebrite canning tomatoes, Vinedale and Vinette sweet pepper; Velvet lettuce; Polarvee, Sunnyvee, Buttervee, Marketeve and Terdervue sweet corn. Most of these varieties are in commercial production. Ornamental plant introductions include Vesper chrysanthemum, Vida gladioli, Vinesprier juniper, Cayuga and Oneida lily, and Veesprite rhododendron.

(c) Variety Evaluation — Closely associated with plant breeding is variety evaluation. Varieties and selections of fruit types suited to temperate zones and of particular interest in the area are brought in from all parts of the world and tested, as well as selections from our own breeding programs. At any one time, Institute orchards and plan-

tations may have 1,000 varieties and selections under observation. Kinds of fruit grown are apple, apricot, cherry, peach, nectarine, pear, plum, currant, gooseberry, raspberry, strawberry, blueberry, grape and nuts. A collection of ornamental material with emphasis on rhododendrons, clematis, holly and lilies is also maintained. A similar program is underway for vegetables, particularly at Simcoe and Bradford.

The variety collections are constantly refined, retaining only those varieties showing promise or that may have characters of value as parents in a breeding program. Many important varieties have been introduced for use in Ontario by means of these trials. In vegetables, the picture as to kind and varieties parallels that of fruit with special emphasis on kinds suited to the warm summers and early areas of Southern Ontario — sweet corn, tomato, cucumber, bean, pepper, cabbage, potato and sweet potato. At Bradford, special emphasis is on crops grown on muck soils — onions, carrots, celery, lettuce and potatoes.

Product Research and Development

Work with harvested horticultural materials is centred in the Horticultural Products Laboratory at Vineland Station. This laboratory was established in 1950 to investigate physical, biological and chemical problems associated with harvested fruit and vegetable materials, to develop new or improved products and to provide technical assistance to the horticultural industry on storage and processing problems. A major task is the evaluation of the new fruits and vegetables developed by Institute plant breeders or introduced from elsewhere.

Particular emphasis is attached to the evaluation of new grape varieties as wines — part of the program of developing distinctive types of Canadian wines. This program is closely tied to the grape and wine industry, with effective grower and processor involvement.

Research on problems of immediate interest to the processing industry's canning plants, wineries, and other processing plants is being conducted. Studies include those of a microbiological nature (spoilage and preservation, fermentation, and the application of new bacterial and fungal processes to wines and other products), as well as biochemical studies on color and composition of fruits. Physical and physiological studies on the storage properties of fruits and vegetables, including apple, cole crops, turnip, cucumber, peaches and other tender or berry fruits are also underway.